

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US2004/041580

A. CLASSIFICATION OF SUBJECT MATTER

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61K38/55 A61K31/536 A61P37/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61P A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data, BIOSIS, EMBASE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category ° | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|---|
| X | US 6 608 030 B1 (PLOEGH HIDDE L ET AL) 19 August 2003 (2003-08-19) | 1,3,5-7, 10,14, 15,17, 19,21, 23,24 |
| Y | column 1, lines 16-23 column 7, lines 30-39,53 column 8, lines 1-10; example 7 ----- -/-- | 1-25 |

X Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

^a Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

7 April 2005

Date of mailing of the international search report

19/04/2005

Name and mailing address of the ISA
European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Allnutt, S

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US2004/041580

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|-----------------------|
| X | WO 02/20485 A (BOEHRINGER INGELHEIM PHARMACEUTICALS, INC; BEKKALI, YOUNES; HICKEY, EU) 14 March 2002 (2002-03-14) page 2, lines 23-25; claim 1.2 page 246, lines 26-29 page 247, line 31 - page 248, line 4 page 262, lines 42,43 page 263, lines 25,26 | 1,20,21 |
| Y | ----- | 1-25 |
| X | WO 03/029200 A (BOEHRINGER INGELHEIM PHARMACEUTICALS, INC) 10 April 2003 (2003-04-10) | 1,20,21 |
| Y | page 179, line 29 - page 181, line 6 ----- | 1-25 |
| X | RIESE R J ET AL: "CATHEPSIN S ACTIVITY REGULATES ANTIGEN PRESENTATION AND IMMUNITY" June 1998 (1998-06), JOURNAL OF CLINICAL INVESTIGATION, NEW YORK, NY, US, PAGE(S) 2351-2363, XP002919128 ISSN: 0021-9738 page 2351, column 1, lines 19,20,24-29 page 2352, column 1, lines 22-30 ----- | 10,14, 19,22,23 |
| Y | WO 02/20002 A (ORTHO MCNEIL PHARMACEUTICAL, INC) 14 March 2002 (2002-03-14) page 6, lines 10-19; claim 1 ----- | 1-25 |
| Y | SAEGUSA KAORU ET AL: "Cathepsin S inhibitor prevents autoantigen presentation and autoimmunity" JOURNAL OF CLINICAL INVESTIGATION, vol. 110, no. 3, August 2002 (2002-08), pages 361-369, XP002323592 ISSN: 0021-9738 the whole document ----- | 1-25 |
| P,X | WO 2004/083182 A (BOEHRINGER INGELHEIM PHARMACEUTICALS, INC; HICKEY, EUGENE, R; LIU, WIE) 30 September 2004 (2004-09-30) page 36, lines 5-7; claim 11; example 5 page 37, lines 1,4,5 ----- | 1,20,21 |
| P,X | WO 2004/028521 A (NOVARTIS AG; NOVARTIS PHARMA GMBH; FOSTER, CAROLYN, ANN; HIESTAND, PET) 8 April 2004 (2004-04-08) claims 1,4 ----- | 10,11, 19,21 |

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2004/041580

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 1-20
because they relate to subject matter not required to be searched by this Authority, namely:
Although claims 1-20 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/041580

| Patent document cited in search report | | Publication date | | Patent family member(s) | | Publication date |
|---|----|---------------------|----|----------------------------|--|---------------------|
| US 6608030 | B1 | 19-08-2003 | US | 2003166534 A1 | | 04-09-2003 |
| | | | AT | 255126 T | | 15-12-2003 |
| | | | AU | 723447 B2 | | 24-08-2000 |
| | | | AU | 2741897 A | | 12-11-1997 |
| | | | CA | 2251714 A1 | | 30-10-1997 |
| | | | DE | 69726426 D1 | | 08-01-2004 |
| | | | DE | 69726426 T2 | | 16-09-2004 |
| | | | DK | 912601 T3 | | 29-03-2004 |
| | | | EP | 1400530 A1 | | 24-03-2004 |
| | | | EP | 0912601 A1 | | 06-05-1999 |
| | | | ES | 2208898 T3 | | 16-06-2004 |
| | | | JP | 2000509376 T | | 25-07-2000 |
| | | | NZ | 332390 A | | 28-07-2000 |
| | | | PT | 912601 T | | 30-04-2004 |
| | | | WO | 9740066 A1 | | 30-10-1997 |
| <hr/> | | | | | | |
| WO 0220485 | A | 14-03-2002 | US | 6420364 B1 | | 16-07-2002 |
| | | | AU | 4569401 A | | 22-03-2002 |
| | | | BG | 107585 A | | 28-11-2003 |
| | | | BR | 0113740 A | | 24-06-2003 |
| | | | CA | 2417177 A1 | | 14-03-2002 |
| | | | CN | 1471511 A | | 28-01-2004 |
| | | | CZ | 20030603 A3 | | 18-06-2003 |
| | | | EE | 200300093 A | | 15-02-2005 |
| | | | EP | 1322613 A1 | | 02-07-2003 |
| | | | HU | 0303934 A2 | | 28-04-2004 |
| | | | JP | 2004508356 T | | 18-03-2004 |
| | | | MX | PA03001947 A | | 24-06-2003 |
| | | | NO | 20031065 A | | 07-03-2003 |
| | | | NZ | 525169 A | | 26-11-2004 |
| | | | PL | 361038 A1 | | 20-09-2004 |
| | | | SK | 2862003 A3 | | 05-08-2003 |
| | | | US | 2002058809 A1 | | 16-05-2002 |
| | | | WO | 0220485 A1 | | 14-03-2002 |
| | | | US | 2003216383 A1 | | 20-11-2003 |
| | | | US | 2004006078 A1 | | 08-01-2004 |
| | | | US | 2003225271 A1 | | 04-12-2003 |
| | | | US | 2003225270 A1 | | 04-12-2003 |
| | | | US | 2003232826 A1 | | 18-12-2003 |
| | | | US | 2002137932 A1 | | 26-09-2002 |
| | | | US | 2005032792 A1 | | 10-02-2005 |
| | | | US | 2005032772 A1 | | 10-02-2005 |
| | | | ZA | 200301032 A | | 21-04-2004 |
| <hr/> | | | | | | |
| WO 03029200 | A | 10-04-2003 | CA | 2459825 A1 | | 10-04-2003 |
| | | | EP | 1434769 A2 | | 07-07-2004 |
| | | | JP | 2005504827 T | | 17-02-2005 |
| | | | WO | 03029200 A2 | | 10-04-2003 |
| | | | US | 2004063679 A1 | | 01-04-2004 |
| <hr/> | | | | | | |
| WO 0220002 | A | 14-03-2002 | AU | 8870601 A | | 22-03-2002 |
| | | | AU | 8871401 A | | 22-03-2002 |
| | | | AU | 8873001 A | | 22-03-2002 |
| | | | AU | 8873101 A | | 22-03-2002 |
| | | | BR | 0114054 A | | 01-07-2003 |
| | | | CA | 2421493 A1 | | 14-03-2002 |
| | | | CA | 2421502 A1 | | 14-03-2002 |
| | | | CA | 2421505 A1 | | 14-03-2002 |

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/041580

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---------------------|----------------------------|---------------------|
| WO 0220002 A | | CA 2421510 A1 | 14-03-2002 |
| | | CN 1482911 A | 17-03-2004 |
| | | CN 1473043 A | 04-02-2004 |
| | | CN 1505509 A | 16-06-2004 |
| | | CZ 20030635 A3 | 15-12-2004 |
| | | EP 1315490 A2 | 04-06-2003 |
| | | EP 1315741 A2 | 04-06-2003 |
| | | EP 1315491 A2 | 04-06-2003 |
| | | EP 1315492 A2 | 04-06-2003 |
| | | HU 0302475 A2 | 28-11-2003 |
| | | JP 2004523469 T | 05-08-2004 |
| | | JP 2004531456 T | 14-10-2004 |
| | | JP 2004508329 T | 18-03-2004 |
| | | JP 2004508330 T | 18-03-2004 |
| | | MX PA03001960 A | 18-03-2004 |
| | | MX PA03001962 A | 26-03-2004 |
| | | MX PA03001963 A | 18-03-2004 |
| | | MX PA03001964 A | 26-03-2004 |
| | | NZ 524680 A | 24-09-2004 |
| | | NZ 524682 A | 26-11-2004 |
| | | WO 0220011 A2 | 14-03-2002 |
| | | WO 0220002 A2 | 14-03-2002 |
| | | WO 0220012 A2 | 14-03-2002 |
| | | WO 0220013 A2 | 14-03-2002 |
| | | US 2002115656 A1 | 22-08-2002 |
| | | US 2002035108 A1 | 21-03-2002 |
| | | US 2002147189 A1 | 10-10-2002 |
| | | US 2002055497 A1 | 09-05-2002 |
| | | ZA 200302630 A | 05-07-2004 |
| | | ZA 200302635 A | 15-07-2004 |
| | | ZA 200302637 A | 05-07-2004 |
| WO 2004083182 A | 30-09-2004 | US 2004180886 A1 | 16-09-2004 |
| | | WO 2004083182 A1 | 30-09-2004 |
| WO 2004028521 A | 08-04-2004 | AU 2003266404 A1 | 19-04-2004 |
| | | WO 2004028521 A2 | 08-04-2004 |